

REMARKS

Claims 1-19 are pending. Claims 1-4, 6-8, 11 and 16-18 are amended. Claims 9, 10 and 19 are canceled. Claims 20-22 are added. Applicants respectfully request reexamination and reconsideration of all pending and newly added claims.

Claims Rejected Under 35 U.S.C. § 102(b)

Claims 1-3, 7, 9-13 and 16-19 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Truax et al. (U.S. Patent No. 5,242,304). Applicants respectfully traverse this rejection.

As amended, independent claim 1 is directed to a method for making a custom-fit palatal arch expander for a patient. The method involves acquiring at least one digital scan representing at least a portion of upper teeth and a palate of the patient, fabricating a first portion of the custom-fit palatal arch expander, fabricating a second portion of the arch expander, and coupling an expansion member between the first and second portions. The first portion of the expander has a plurality of cavities for receiving posterior teeth on one side of the palate and a palatal portion extending toward a centerline of the palate. Similarly, the second portion of the expander has a plurality of cavities for receiving posterior teeth on the opposite side of the palate and a palatal portion extending toward a centerline of the palate. Each of the cavities of the first and second portions is specifically configured to fit over one of the posterior teeth of the patient, based on the shapes of the posterior teeth as represented in the digital scan(s). Independent claim 11, directed to a custom-fit dental appliance for expanding a palatal arch of a patient, includes similar limitations.

Thus, independent claims 1 and 11 describe a method for making an arch expander and the dental appliance itself, respectively, that are truly custom-fit for the patient. Such a custom-

fit, arch expanding appliance has distinct advantages over prior-art wire and metal arch expanders. For example, such an appliance may typically be removed and placed back in position by the patient, thus adding convenience and enhancing dental hygiene by facilitating brushing. Furthermore, because the first and second portions are custom configured to fit over the patient's teeth, the arch expander is designed to stay in place without requiring brackets, undercuts, wires or other retention devices to hold the expander to the teeth. Again, this facilitates removal and replacement of the appliance and also reduces the patient's discomfort since there are no protruding retention members poking into the patient's cheek, tongue, gums or palate.

Truax, in direct contrast to the present invention, describes "surface mounted undercuts" 12, which are surface bumps attached to teeth with adhesive for holding one or more dental appliances on the teeth. All of the embodiments described in Truax require at least one undercut to hold an appliance in place (see column 2, lines 25-27 and column 5, lines 15-20), and nowhere does Truax describe, teach or suggest a custom-fitting arch expander. More specifically, Truax does not describe, teach or suggest multiple cavities of first and second portions of an arch expander, each specifically configured to fit over one posterior tooth of a patient, based on the shapes of the posterior teeth as represented in one or more digital scans. Although the Office Action points to the appliance 38 shown in Figure 6 of Truax, it is evident from Figures 7 and 8 that the appliance 38 is not custom made and requires recesses 54 to hold the appliance on over multiple surface mounted undercuts 12.

Therefore, Truax does not describe, teach or suggest each and every element of independent claim 1 or 11. Applicants thus respectfully request withdrawal of the rejection of

claims 1 and 11, as well as claims 2-3, 7, 9, 10, 12, 13 and 16-19, which depend variously therefrom, under 35 U.S.C. § 102(b).

Claims Rejected Under 35 U.S.C. § 103(a)

Claims 4 and 14 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Truax in view of Williams (U.S. Patent No. 5,769,631). Claims 5 and 15 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Truax in view of Tepper (U.S. Patent No. 5,376,001). Claims 6 and 8 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Truax in view of Schulman et al. (U.S. Patent No. 6,808,659). Applicants respectfully traverse these rejections.

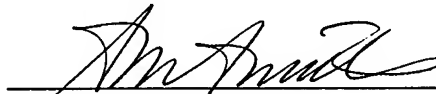
For all the reasons discussed above, Applicants respectfully submit that none of the proposed combinations of references, even if made, would achieve the invention of independent claims 1 and 11. Specifically, none of the cited references, either alone or in combination, describes, teaches or suggests a custom-fit arch expander/dental appliance having multiple cavities, each specifically configured to fit over one of the posterior teeth of the patient, based on the shapes of the posterior teeth as represented in one or more digital scans. As discussed above, the method for making such a custom-fit arch expander (claim 1), as well as the dental appliance itself (claim 11) have distinct advantages over the prior art, and none of the references include such a teaching or suggestion. Furthermore, there is no motivation or suggestion to combine the references as suggested in the Office Action. Therefore, Applicants respectfully request withdrawal of the rejections of claims 4, 5, 6, 8, 14 and 15 under 35 U.S.C. § 103(a).

CONCLUSION

In view of the foregoing, Applicants believe that all pending claims are in condition for allowance and respectfully request a formal Notice of Allowance at an early date. If for any reason the Examiner believes that a telephone conference would expedite prosecution of the subject application, the Examiner is invited to telephone the undersigned at 408-789-1522.

Please charge any required fees to Deposit Account No.: 50-1399.

Respectfully submitted,



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